

REMARKS

Claims 1 to 12 are pending in the application; claim 13 has been canceled.

Drawings

The drawings are objected to because there is no L1 or L2 as listed in the specification in regard to Fig. 7; furthermore, there is no L3 and L4 as listed in the specification.

Replacement sheet showing Figs. 7 to 11 is submitted. In Fig. 8 the longitudinal axes of the clamping elements 8 and 9 have been identified as "L1" and "L2". Note that Fig. 8 is the end view of Fig. 7 where the relative position of the clamping elements and the arrangement of the axes can be seen. The specification (paragraph 0029) has been amended to make clear that Figs. 7, 8 and 9 illustrate the same embodiment.

It is respectfully submitted that "L3" and "L4" are shown in Fig. 5.

Reconsideration of the objection of the drawings is respectfully requested.

Claim Objections

The spelling error ("bars ends") in claim 1 has been corrected.

Claim Rejections - 35 U.S.C. 112

Claims 2 and 13 stand rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite.

Claim 2 has been amended to avoid a positive recitation of the bar ends.

Claim 13 is canceled.

Rejection under 35 U.S.C. 103

Claims 1-5, 7-10, and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Holdsworth* (US 5,909,980) and *Reiland* (US 3,340,667).

Holdsworth discloses a tubular coupler for reinforcing bars that comprises an elongate tubular metal body with converging inner wedge surfaces. The tubular body is provided with spaced threaded holes and screws 142 are threaded into the holes for securing the reinforcing bars. The threaded holes are arranged in a single row.

Reiland discloses splices for ends of reinforcing bars in concrete structures. A sleeve element 38 is provided that has on its outer surface an opening 40 extending in the

longitudinal direction. The flanges 41 and 42 of the opening 40 are connected by a wedge member 39 that is pushed onto the flanges 41, 42 so that the flanges are forced toward one another and the clamping force of the sleeve element 38 is generated. However, this clamping force is sufficient only to secure the sleeve and bars relative to one another until the concrete is poured; the sleeve element 38 by itself is not able to transmit compressive or tensional forces in the longitudinal direction of the bars before pouring of the concrete. A connection able to transmit compressive or tensional forces between the bars is created only after the concrete has been poured. The sleeve element 38 and the wedge member 39 both have a plurality of apertures 51, 55, 61 and the concrete flows through the apertures into the space between the bars 19, 23 and the sleeve element 38 and the wedge member 39. This is described in col. 5, line 68, to col. 6, line 8, and is illustrated in Fig. 8. The concrete segments 59 that are created in this way are key-like interlocks and transmit the compressive and tensional stresses from bar to bar.

This arrangement does not show threadable clamping elements that are threaded into apertures and clamp a bar when tightened. Because of the minimal wall thickness of the sleeve element, such an arrangement would not be possible. Also, the concrete segments 59 do not apply a clamping force perpendicularly to the axis of the bars but fill the channels 35 between the ribs 34 of the bars so that they block a movement in the axial direction of the bars 19, 23.

The Examiner uses *Reiland* as evidence of recognition in the art of providing a staggered arrangement per se. According to the examiner, it would have been obvious to employ such staggered rows in the arrangement of *Holdsworth* to transmit compressive/tensional forces through the use of increased numbers of locking screws.

Applicant disagrees. Claim 1 requires that the clamping elements

- a) are arranged in a first row and a second row
- b) on the same side of the pipe section relative to the circumference and that
- c) the first row is staggered relative to the second row in the longitudinal direction.

First of all, *Reiland* relates to an entirely different type of connection so that a combination of this concept with that of *Holdsworth* is not obvious. *Holdsworth* relates to screws being tightened to apply a clamping force while *Reiland* discloses concrete or grout

being filled through apertures into channels so that the hardened grout in the channels 35 and within the apertures provides interlocking segments of the main concrete body. A clamping force is not applied by the segments 59 onto the bars 19, 23.

Moreover, *Reiland* clearly states that the sleeve should have about the entire circumference and the entire length a plurality of openings so that the concrete can be delivered properly into the channels 35 of both bars (see col. 5, lines 68ff; col. 6, lines 28-33).

The examiner interprets this reference as making obvious a staggered arrangement of two rows on the same side of the circumference. There is no suggestion in *Reiland* that would lead a person skilled in the art to arrive at an arrangement of two staggered rows. If an arrangement can be derived from this disclosure, it is a uniform distribution of apertures in the circumferential and in the axial directions. The examiner clearly combines these two references in hindsight in knowledge of the present invention; without knowledge of the staggered two row arrangement of the present invention, a person skilled in the art would have no reason to select from the aperture arrangement 51, 55, 61 covering the entire surface of the sleeve 38 and the wedge member 39 just two rows on one side of the circumference. This is especially true because *Holdsworth* does not suggest that more than one row could be used. *Holdsworth* discloses an interaction of the clamping force applied by the screws 142 with opposed wedge-shaped projections 125 providing a seat for the bar. It does not make sense to use a second row of clamping screws in such an arrangement because a safe three-point clamping action is provided that is uniformly distributed about the circumference of the bar.

Reconsideration and withdrawal of the rejection of the claims 1-5 and 7-10 pursuant to 35 USC 103 are therefore respectfully requested.

Claim 6 stands rejected under 35 USC 103(a) as being unpatentable over *Holdsworth* (US 5,909,980) and *Reiland* (US 3,340,667) and further in view of *Ecklesdafer* (US 5,154,652).

Ecklesdafer concerns a coupling of rotating drive shafts wherein the coupling element is comprised of a coupling sleeve that is divided in the longitudinal direction and

the two sleeve halves are connected to one another by screws. The screws however do not act on or clamp the shaft received in the sleeve. This arrangement has nothing to do with the embodiment of Figs. 4 to 6 of the present invention showing a substantially tangential arrangement of the bores for the clamping elements acting on the bar ends.

Claims 11-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Holdsworth* (US 5,909,980), *Reiland* (US 3,340,667), *Ecklesdafer* (US 5,154,652) and *Mochizuki* (US 5,974,761).

Claims 11 and 12 are believed to be allowable as dependent claims of claim 1.


CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or e-mail from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on December 8, 2005,


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Encl.: replacement drawing sheet Figs. 7 to 11 (1 sheet)

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